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Case Report

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Post traumatic volvulus: a case report

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ABSTRACT

Volvulus is a clinical picture that causes obstruction in the gastrointestinal system and occurs as a result of rotation of the organ around its axis. Although it mostly develops in the colon segments, it rarely occurs in the stomach. The stomach normally stabilizes its position by connecting to the spleen, liver and diaphragm. Gastric tumors, focal adhesions or masses in adjacent organs that disrupt the normal anatomy may predispose to gastric volvulus. Diaphragmatic hernia accompanies volvulus in two thirds of cases. In this article, we present a case of gastric volvulus 10 years after penetrating chest trauma and accompanied by hiatus hernia.

Keywords: Volvulus, diaphragmatic hernia, stomach

INTRODUCTION

Volvulus is characterized by intestinal obstruction which occurs as a result of the rotation of the stomach and intestine segments around its axes. It is most commonly seen in the sigmoid colon and cecum and is rarely seen in other intestinal segments.[1] Gastric volvulus is a rare disease that causes temporary and mild symptoms. However, it can lead to obstruction and ischemia if the diagnosis cannot be made.[2] In this article, we present a case of gastric volvulus presented with hematemesis, which developed in the iatrogenic diaphragmatic hernia after penetrating chest trauma.

CASE

A 39-year-old male patient was admitted to the emergency department with nausea and vomiting after meals which occurs for 2 weeks. In the examination, abdominal pain last for 2 months and vomit was bloody in the last 2 days. The patient had a history of penetrating trauma on the left side of the chest 10 years ago. Laboratory tests showed mild leukocytosi and hypokalemia. Physical examination revealed mild epigastric sensitivity. There was any problem about defecation. In the chest exam there was diaphragmatic hernia on the left side (**Figure 1**). He was hospitalized at the gastroenterology service for follow-up and treatment. Since the patient had continuous vomiting, nasogastric tube (NG) insertion was planned for drainage, but it could not be pushed forward. Upper endoscopy was ineffective because of dilatation of esophagus and stomach with liquid and food.

Figure 1. Herniated intestinal segments to the left hemithorax in X-Ray

He underwent abdominal tomography with the intestinal obstruction clinic. It was seen a defect of approximately 57 mm in the center santral left hemidiaphragm. The corpus distal of the stomach, pyloric, duodenum 1-2. continent and splenic flexure was herniated through the defect into the hemithorax. The corpus distal and duodenum 2. Continent were necked in the hernia neck and gastric axis was reported secondary to this change. The gastric corpus distal was dilated in the hemithorax, and it was evaluated as compatible with mesenteroaxial gastric volvulus. The patient consulted with gastroenterology surgery and operated (**Figure 2**).

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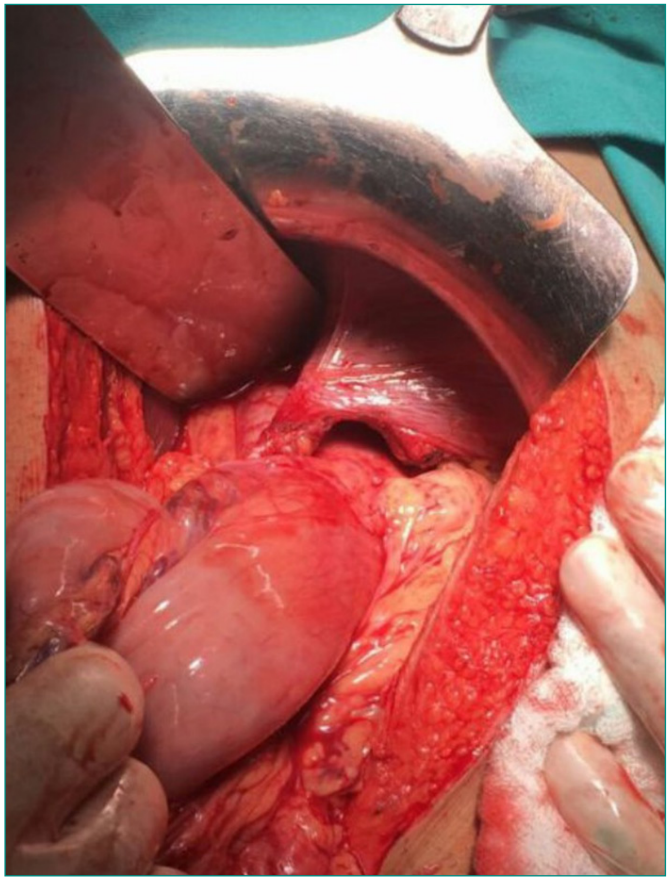

Figure 2. Intraoperative diaphragmatic hernia and herniated stomach

DISCUSSION

Gastric volvulus results when the stomach is twists on itself. It is rarely seen without diaphragmatic hernia. In the literature a first case of diaphragmatic hernia developed after sword injury was described in 1579.[1]

It is not related to gender and race.[3] It develop most common secondary to congenital diaphragmatic defect in children. It developed conjenitally in the malrotation situation, laxity of the stomach ligaments, left diaphragmatic elevations, or akkiz in older age, diaphragmatic disorders, phrenic nerve palsy, kyphoscoliosis, focal adhesions, gastric tumor or adjacent masses.[2,3] Most cases develop above the diaphragma associated with paraesophageal or mixed diaphragmatic hernia.[2]

Gastric volvulus is classified as organoaxial or mesenteroaxial according to the axis of rotation, as primary (idiopathic) or secondary according to the etiology and as acute or chronic according to clinical picture.

Organoaxial rotation develops as a result of the rotation of the stomach along the long axis of the stomach. It is the most common type of gastric volvulus occurring in 60% of cases, is frequently associated with diaphragmatic hernia and secondary etiologies. Stomach strangulation is more common in this type of volvulus.[4] Mesenteroaxial volvulus occurs as a result of rotation of the stomach along its vertical axis,[5] rotation is often incomplete and intermittent, not associated with a secondary anatomical defect and leads to chronic symptoms.

Primary (idiopathic) gastric volvulus occurs as a result of neoplasia, adhesions, gastric ligaments disorders due skeletal deformity and causes more chronic symptoms.[5] Secondary gastric volvulus constitutes two-thirds of patients with gastric volvulus and occurs due to reasons such as paraesophageal hernia, diaphragmatic hernia (Morgagni's hernia, Bochdalek's hernia, traumatic hernia), diaphragma evantration, phrenic nerve paralysis. The most common diaphragmatic defect associated with gastric volvulus in adults is paraesophagial hernia.[6]

Clinically, acute or chronic onset abdominal pain, vomiting or chest pain are seen. Acute gastric outlet obstruction may be present in patients with a rotation of> 180°, while partial gastric occlusion symptoms may be intermittent and chronic in patients with a lower degree of rotation. Since it is a rare condition, it is not considered in the differential diagnosis of these symptoms. The Borchardt triad, consisting of pain, vomiting and nasogastric tube insertion, occurs in 70% of patients with acute gastric volvulus.[7] Peritonitis may occur in patients with gastric ischemia due to strangulation or perforation.

Symptoms are obscure in patients with chronic gastric volvulus; mild upper abdominal discomfort, dysphagia, dyspeptic symptoms can be seen. It can be caused to gastric ulcer, occult hemorrhage and chronic anemia. In the diagnosis, besides the history and physical examination, imaging methods should be used in patients with suspected gastric volvulus. Chest and abdominal radiography reveal a single large, spherical gas view with air-fluid levels in upper abdomen or chest film.[8] This finding is not common in patients with partial volvulus (rotation <180°). Computed tomography reveal typically abnormal location of stomach in the chest. The frequently used endoscopy has a low sensitivity in the diagnosis of gastric volvulus (32-45%).[9]

The patient should be hemodynamically stabilized and N/G decompression should be performed. Spontaneous derotation with N/G decompression may occur. Endoscopic decompression and derotation can be performed in patients whom N/G decompression is unsuccesfull. If decompression couldnt be done, it is suggestive of having strangulation and indicating the need for emergency surgery. Acute gastric volvulus has a mortality rate of 30-50% when the diagnosis is missed and treatment is postponed. For patients with primary chronic gastric volvulus, after a successful derotation (laparoscopic/endoscopic), gastric fixation alone may be sufficient to prevent recurrent rotation. Surgical treatment is a suitable option for patients with moderate to severe symptoms of secondary chronic gastric volvulus. For patients with mild symptoms, especially if the patient has a limited life span or is a poor candidate for repair, conservative treatment without intervention may be more appropriate.

CONCLUSION

We report a case of mesoaxial gastric volvulus secondary to diaphragmatic injury due to trauma. Gastric volvulus should be considered in differential diagnosis in patients presented nausea, vomiting and abdominal pain symptoms and having risk factors for congenital or acquired gastric volvulus. So appropriate examination and treatment should be done without any serious complication.

ETHICAL DECLARATIONS

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

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